

## LISTING OF THE CLAIMS

1-31. (Canceled)

32. (Previously Presented) An artificial intervertebral disc prosthesis having an anterior portion and a posterior portion, comprising:

- a first endplate having an upper surface and a lower relatively flat, uninterrupted surface;
- a second endplate having an upper surface and a lower surface, wherein an axis perpendicular to said first endplate and said second endplate is a longitudinal axis;
- a visco-elastic cushion interposed between and adhered to said first and second endplates, wherein said visco-elastic cushion is annular and comprises a cavity therein defining a visco-elastic cushion internal space bounded by a visco-elastic cushion internal surface substantially parallel to said longitudinal axis;
- a first projection extending from said lower surface of said first endplate terminating in a first distal end, said first projection having at least one side wall parallel to said visco-elastic cushion internal surface;
- a second projection extending from said upper surface of said second endplate and into said cavity and substantially aligned with said first projection, said second projection having at least one side wall parallel to said visco-elastic cushion internal surface, said second projection terminating at a second distal end to form, in an unloaded condition, a gap between said first distal end and said second distal end, said gap having a predetermined dimension; and

wherein direct contact between first distal end of said first projection and said second distal end of said second projection limits said first endplate and said second endplate from moving relatively closer to one another.

33. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said first projection of said first endplate extends a distance of approximately 1 to approximately 3 millimeters from said lower surface of said first endplate.
34. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said first projection of said first endplate is substantially cylindrically shaped.
35. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said first distal end has a radius of approximately 2 millimeters to approximately 15 millimeters.
36. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said second projection of said second endplate extends a distance of approximately 3 millimeters to approximately 6 millimeters from said upper surface of said second endplate to said second distal end.
37. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said gap between said first distal end and said second distal end is approximately 1 millimeters to approximately 2 millimeters.
38. (Previously Presented) The artificial intervertebral disc prosthesis of claim 32 wherein said upper surface of said first endplate and said lower surface of said second endplate further comprise appurtenances that aid in securing the prosthesis to adjacent vertebrae.
39. (Previously Presented) The artificial intervertebral disc prosthesis of claim 32, further comprising a force or pressure transducer located within said prosthesis for allowing the measurement and transmittal of information about loads experienced by the prosthesis.
40. (Previously Presented) The artificial intervertebral disc prosthesis of claim 39, wherein said second projection of said second endplate houses at least a

portion of a package of signal conditioning and amplification electronics that is connected to said force or pressure transducer placed within said second projection and at other peripheral locations around said second endplate.

41. (Previously Presented) The artificial intervertebral disc prosthesis of claim 39, wherein said second projection of said second endplate houses electronics connected to said force or pressure transducer placed within said second projection and at other peripheral locations around said second endplate.
42. (Original) The artificial intervertebral disc prosthesis of claim 39, wherein said second endplate further comprises a flex circuit including a load sensor embedded onto said upper surface of said second endplate.
43. (Previously Presented) The artificial intervertebral disc prosthesis of claim 32 wherein said first endplate and said second endplate comprise a biocompatible material suitable for implantation.
44. (Previously Presented) The artificial intervertebral disc prosthesis of claim 43 wherein said first endplate and said second endplate comprise materials selected from the group consisting of stainless steel, stainless steel alloys, titanium, titanium alloys, cobalt chromium molybdenum alloys, and composite materials.
45. (Previously Presented) The artificial intervertebral disc prosthesis of claim 44 wherein said material is an alloy comprising approximately 66 percent cobalt, approximately 28 percent chromium, and approximately 6 percent molybdenum, by weight.
46. (Previously Presented) The artificial intervertebral disc prosthesis of claim 32, wherein said first endplate and said second endplate each comprise a posterior portion;

wherein said posterior portion of each of said first and second endplates further comprises a concavity that defines posterior lobes projecting from said posterior portions of each of said first and second endplates.

47. (Previously Presented) The artificial intervertebral disc prosthesis of claim 32 wherein each of said first and second endplates have an external surface therearound defining a generally “D” shape.

48-114. (Canceled)

115. (Previously Presented) The artificial intervertebral disc prosthesis of claim 32, wherein said first distal end of said first projection and said second distal end of said second projection are substantially planar.

116. (Previously Presented) The artificial intervertebral disc prosthesis of claim 32, wherein contact between said first distal end of said first projection and said second distal end of said second projection permits at least some motion in a direction perpendicular to a direction that brings said first endplate and said second endplate closer to each other.

117-118. (Canceled)

1 119. (Currently amended) An artificial intervertebral disc prosthesis having an anterior  
2 portion and a posterior portion, comprising:  
3 a first endplate having an upper surface and a lower relatively flat, uninterrupted  
4 surface;  
5 a second endplate having an upper surface and a lower surface, wherein an axis  
6 perpendicular to said first endplate and said second endplate is a longitudinal  
7 axis;  
8 a projection extending from said upper surface of said second endplate toward  
9 said first endplate, said projection being at least partially cylindrical and  
10 having at least one side wall parallel to a longitudinal axis of said prosthesis,  
11 said projection terminating at a distal end to form a gap between said distal  
12 end and said first endplate lower surface, said gap having a predetermined  
13 dimension; and  
14 a visco-elastic cushion interposed between and adhered to said first and second  
15 endplates having a cavity for receiving said projection;  
16 wherein said distal end of said projection is substantially planar; and  
17 wherein direct contact between said projection and said first endplate stops  
18 compressive motion but allows at least some amount of shear motion.

120. (Previously Presented) The artificial intervertebral disc prosthesis of claim 119,  
wherein said projection of said second endplate extends a distance of  
approximately 3 millimeters to approximately 6 millimeters from said upper  
surface of said second endplate to said distal end.

121. (Previously Presented) The artificial intervertebral disc prosthesis of claim 119,  
wherein said predetermined dimension of said gap between said distal end and  
said first endplate is approximately 1 millimeters to approximately 2  
millimeters.

122. (Previously Presented) The artificial intervertebral disc prosthesis of claim 119, wherein said upper surface of said first endplate and said lower surface of said second endplate further comprise appurtenances that aid in securing the prosthesis to adjacent vertebrae.
123. (Previously Presented) The artificial intervertebral disc prosthesis of claim 119, further comprising a force or pressure transducer located within said prosthesis for allowing the measurement and transmittal of information about loads experienced by the prosthesis.
124. (Previously Presented) The artificial intervertebral disc prosthesis of claim 123, wherein said projection of said second endplate houses at least a portion of a package of signal conditioning and amplification electronics that is connected to said force or pressure transducer placed within said projection and at other peripheral locations around said second endplate.
125. (Previously Presented) The artificial intervertebral disc prosthesis of claim 123, wherein said projection of said second endplate houses electronics connected to said force or pressure transducer placed within said projection and at other peripheral locations around said second endplate.
126. (Previously Presented) The artificial intervertebral disc prosthesis of claim 123, wherein said second endplate further comprises a flex circuit including a load sensor embedded onto said upper surface of said second endplate.
127. (Previously Presented) The artificial intervertebral disc prosthesis of claim 119, wherein said first endplate and said second endplate comprise a biocompatible material suitable for implantation.
128. (Previously Presented) The artificial intervertebral disc prosthesis of claim 127, wherein said first endplate and said second endplate comprise materials selected from the group consisting of stainless steel, stainless steel alloys,

titanium, titanium alloys, cobalt chromium molybdenum alloys, and composite materials.

129. (Previously Presented) The artificial intervertebral disc prosthesis of claim 127, wherein said material is an alloy comprising approximately 66 percent cobalt, approximately 28 percent chromium, and approximately 6 percent molybdenum, by weight.
130. (Previously Presented) The artificial intervertebral disc prosthesis of claim 119, wherein said first endplate and said second endplate each comprise a posterior portion;  
wherein said posterior portion of each of said first and second endplates further comprises a concavity that defines posterior lobes projecting from said posterior portions of each of said first and second endplates.
131. (Previously Presented) The artificial intervertebral disc prosthesis of claim 119, wherein each of said first and second endplates have an external surface therearound defining a generally “D” shape.

132-133. (Canceled)

1 134. (Previously Presented) An artificial intervertebral disc prosthesis having an anterior  
2 portion and a posterior portion, comprising:  
3 a first endplate having an upper surface and a lower relatively flat, uninterrupted  
4 surface;  
5 a second endplate having an upper surface and a lower surface, wherein an axis  
6 perpendicular to said first endplate and said second endplate is a longitudinal  
7 axis;  
8 a projection extending from said upper surface of said second endplate toward  
9 said first endplate, said projection being at least partially cylindrical and  
10 having at least one side wall parallel to a longitudinal axis of said prosthesis,  
11 said projection terminating at a distal end to form a gap between said distal  
12 end and said first endplate lower surface, said gap having a predetermined  
13 dimension; and  
14 a visco-elastic cushion interposed between and adhered to said first and second  
15 endplates having a cavity for receiving said projection;  
16 wherein direct contact between said distal end of said projection and said first  
17 endplate permits at least some motion in a direction perpendicular to a  
18 direction that brings said first endplate and said second endplate closer to each  
19 other.

135. (Canceled)



1 136. (Previously Presented) An artificial intervertebral disc prosthesis comprising:  
2 a first endplate having a first surface for engaging a vertebra and a second surface  
3 opposite said first surface;  
4 a second endplate having a first surface for engaging a different vertebra and a  
5 second surface opposite said first surface;  
6 a longitudinal axis defined between said first endplate and said second endplate  
7 and normal thereto;  
8 an annular polymeric member having an upper surface and a lower surface and  
9 having a cavity defining a polymeric member internal space that is bounded  
10 along said longitudinal axis by said second surface of said first endplate and  
11 by said second surface of said second endplate, and is bounded in a plane  
12 normal to said longitudinal axis by a polymeric member internal surface;  
13 a projection from said second surface of said second endplate having a distal end  
14 located within said polymeric member internal space, said distal end having a  
15 contact surface thereon for directly contacting a portion of said second surface  
16 of said first endplate;  
17 wherein said upper surface and said lower surface of said annular polymeric  
18 member are adhered to, respectively, said second surface of said first endplate  
19 at a first adhesion layer and to said second surface of said second endplate at a  
20 second adhesion layer;  
21 wherein at least one of said first adhesion layer and said second adhesion layer is  
22 parallel to said contact surface of said projection.

137. (Canceled)

138. (Previously Presented) The artificial intervertebral disc prosthesis of claim 32 wherein at least one of said first distal end and said second distal end comprises a relatively flat, uninterrupted surface.
139. (Previously Presented) The artificial intervertebral disc prosthesis of claim 136 wherein said lower surface of said first endplate is substantially parallel to said upper surface of said first endplate.
140. (Previously Presented) The artificial intervertebral disc prosthesis of claim 136 wherein said upper surface of said second endplate is substantially parallel to said lower surface of said second endplate.

141-144 (Canceled)